

Listing of the Claims

1. (Currently Amended) An intravascular stent (50)-comprising:
a mesh of electrically conductive material; and
a non-conductive material disposed within the mesh for connecting the mesh in a generally tubular arrangement such that a net current flowing through the mesh is substantially canceled.
2. (Currently Amended) An intravascular stent (50)-as set forth in claim 1 wherein the mesh of electrically conductive material comprises a plurality of struts (90)-disposed in generally diagonal directions with respect to a central axis of the stent-(60).
3. (Currently Amended) An intravascular stent (50)-as set forth in claim 2 wherein the non-conductive material comprises a plurality of connector elements (95)-for channeling a current (i)-through the plurality of struts-(90).
4. (Currently Amended) An intravascular stent (50)-as set forth in claim 3 wherein the current (i)-flowing through the struts (90)-is induced by RF signals within an examination region (14)-of a magnetic resonance apparatus-(10).
5. (Currently Amended) An intravascular stent (50)-as set forth in claim 4 wherein the struts (90)-and connector elements (95)-define a plurality of strut segments-(s1, s2, s3, s4), each strut segment having a segment current (i1, i2, i3, i4)-associated therewith and the segment currents in adjacent strut segments are equal in magnitude and opposite in polarity.
6. (Currently Amended) An intravascular stent (50)-as set forth in claim 1 wherein the conductive mesh comprises a plurality of co-axial loops (110)-and a plurality of linking members (120)-for connecting the co-axial loops.

7. (Currently Amended) An intravascular stent (50) as set forth in claim 6 wherein the non-conductive material comprises a plurality of insulating nodes (95), the insulating nodes disposed within the conductive mesh whereby a plurality of open circuits are formed in the mesh.

8. (Currently Amended) An intravascular stent (50) as set forth in claim 6 wherein the non-conductive material comprises a plurality of insulating nodes (95), the insulating nodes (95) disposed within the conductive mesh, and the axial loops (110) and linking members (120) connected within the insulating nodes whereby an induced current (i) is channeled through the conductive mesh such that the net current in the stent is substantially minimized.

9. (Currently Amended) A magnetic resonance compatible stent (50) for use in intravascular therapy, the stent comprising:

a plurality of electrically conductive elements arranged in a generally tubular structure; and

at least one non-conductive insulator disposed among the conductive elements for directing a current (i) flowing in the conductive elements such that a net current flowing in the stent is substantially minimized.

10. (Currently Amended) A magnetic resonance compatible stent (50) as set forth in claim 9 wherein the current is induced by RF signals in an examination region (14) of a magnetic resonance apparatus (10).

11. (Currently Amended) A magnetic resonance compatible stent (50) as set forth in claim 10 wherein the conductive elements comprise generally diagonally arranged struts (90) with respect to a central axis (60) of the stent and the at least one non-conductive insulator comprises a plurality of connector elements (95) for directing the current (i) through the struts (90) whereby adjacent segment currents (i1, i2, i3, i4) cancel each other.

12. (Currently Amended) A magnetic resonance compatible stent (50) as set forth in claim 10 wherein:

the conductive elements comprise:

a plurality of loops (110) disposed about a central axis (60) of the stent; and
a plurality of linking members (120) for joining the loops such that the loops and linking members form a generally tubular structure around the central axis of the stent (50); and

the at least one non-conductive insulator comprises a plurality of insulating nodes (95) disposed within the conductive elements to control the current (i)-induced in the conductive elements.

13. (Currently Amended) A magnetic resonance compatible stent (50) as set forth in claim 12 wherein the loops (110) and linking members (120) are connected within the insulator nodes (95) whereby currents flowing through adjacent loops (110) substantially cancel each other.

14. (Currently Amended) A magnetic resonance compatible stent (50) comprising:

conducting means for conducting a current (i) in the stent, the current being induced by RF signals from within an examination region (14) of a magnetic resonance apparatus (10); and

non-conducting means for directing the current flowing in the stent such that a net current flowing in the stent is minimized.

15. (Currently Amended) A method of magnetic resonance imaging comprising the steps of:

generating a main magnetic field within an examination region (14);
exciting magnetic resonance in a subject disposed in the examination region by transmitting RF signals into the examination region, the subject having an intravascular stent (50) disposed therein;

spatially encoding the magnetic resonance in the subject via magnetic field gradients;

receiving magnetic resonance signals from the subject;
inducing a current in the intravascular stent from at least one of the transmitted RF signals and the magnetic resonance signals from the subject;
directing the induced current through the stent whereby a net current flowing through the stent is minimized; and
reconstructing the received signals into a magnetic resonance image.

16. (Original) A stent comprising a generally tubular conductive mesh, the mesh being arranged such that currents induced in the mesh during a magnetic resonance examination are substantially cancelled by one another.